

Figure 1

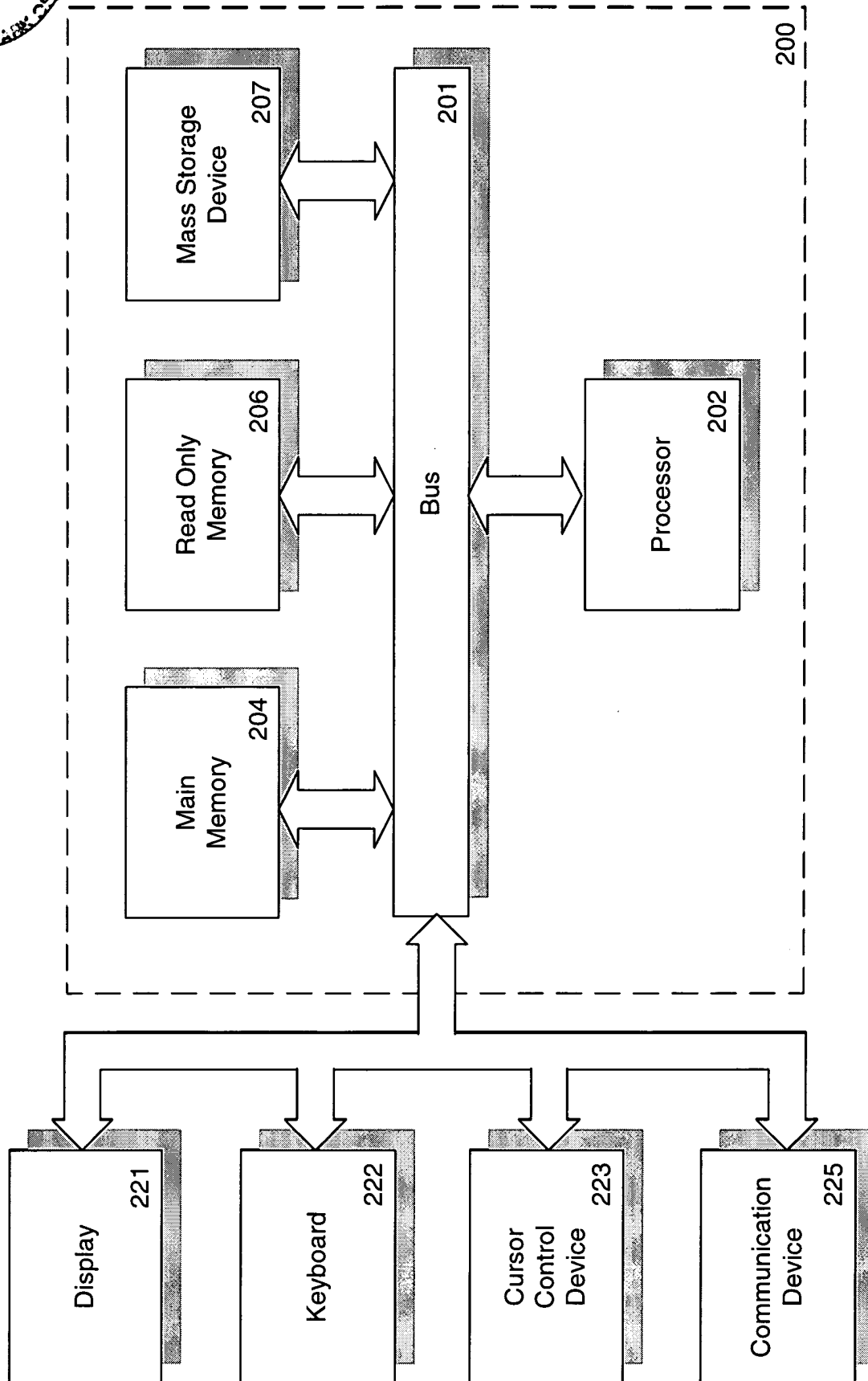


Figure 2

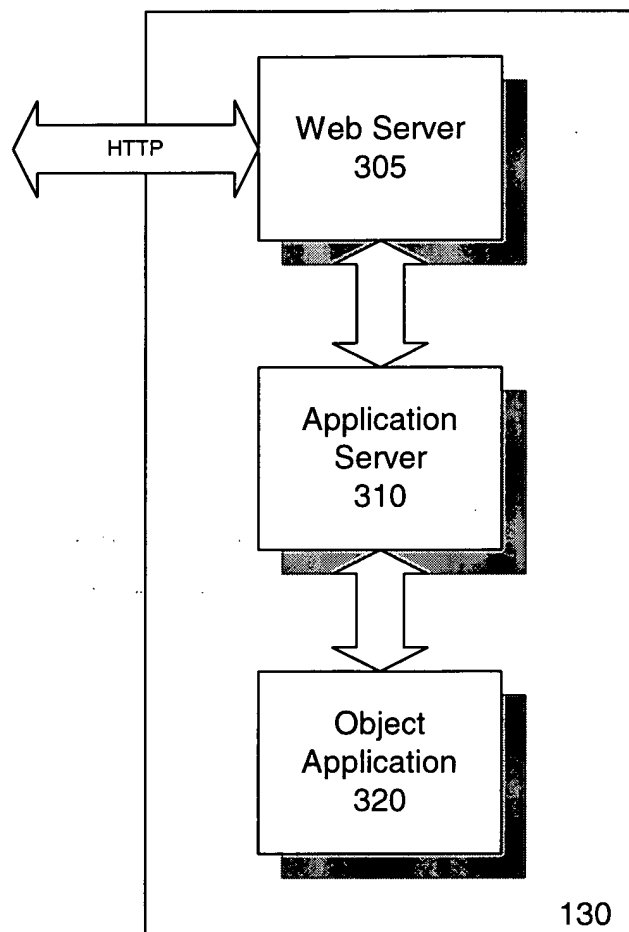
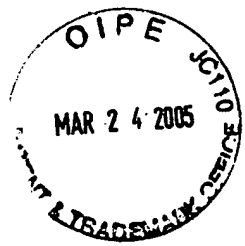


Figure 3

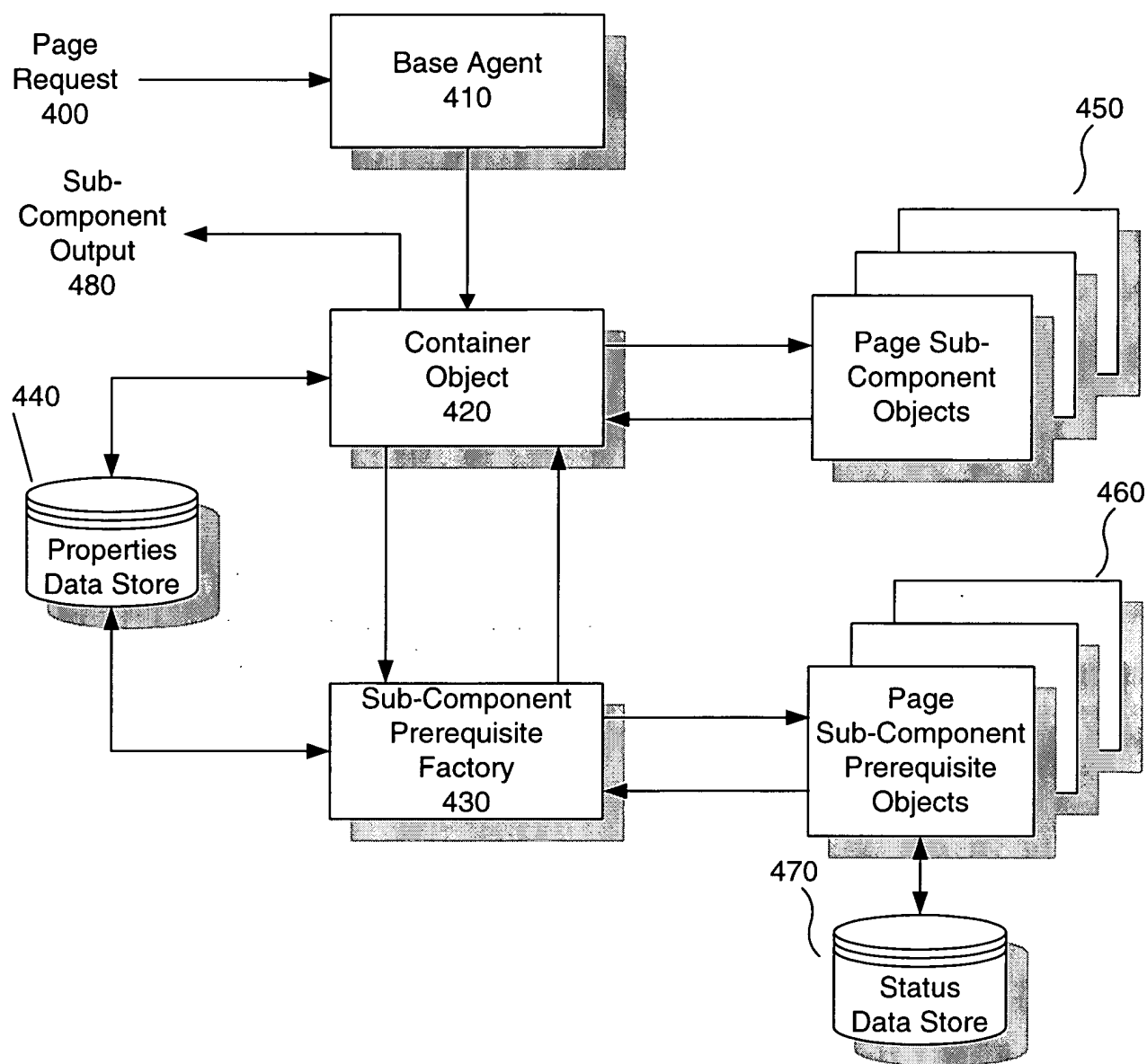


Figure 4

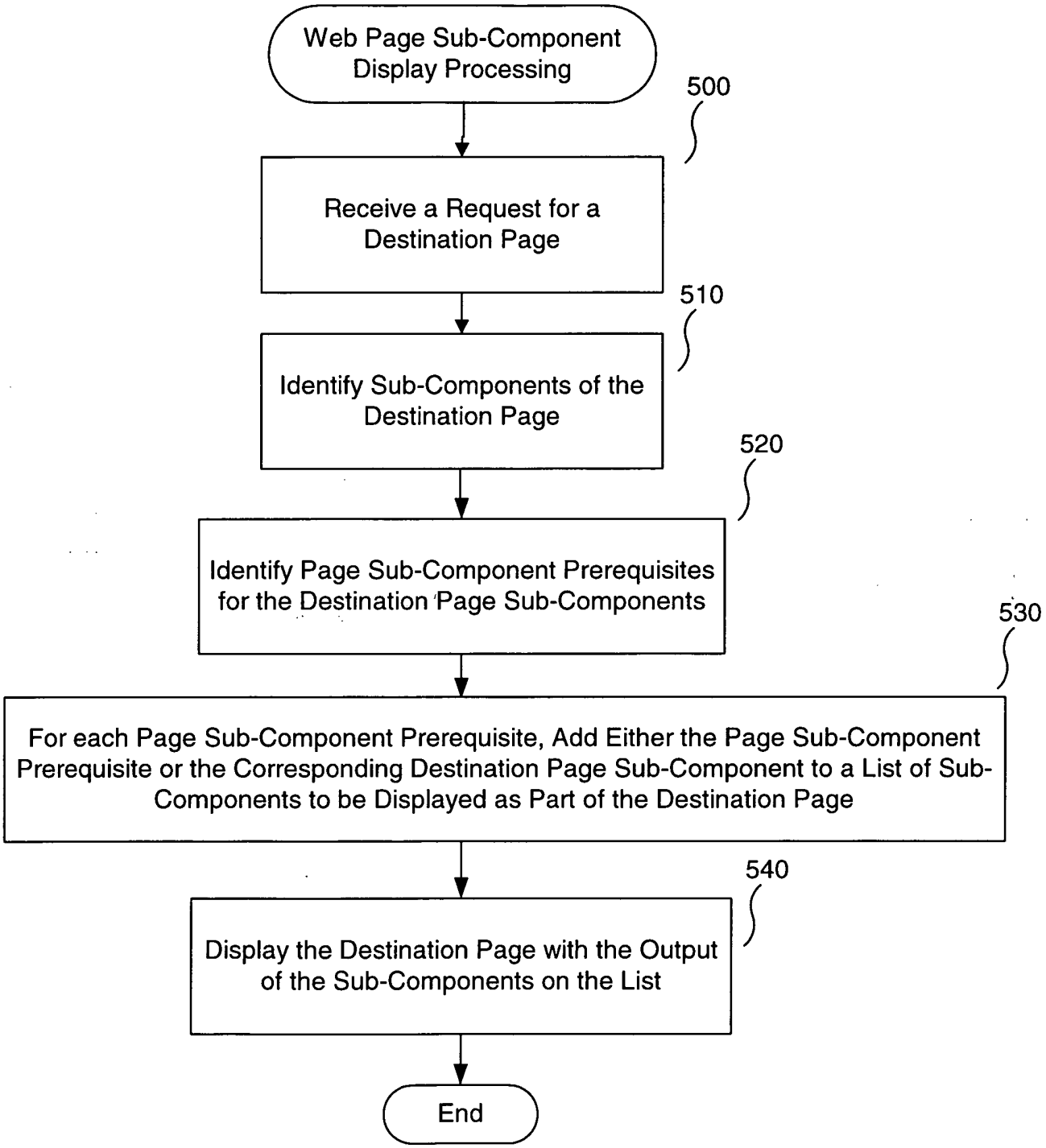
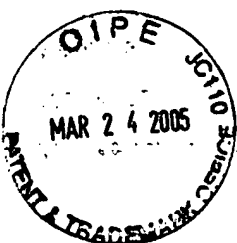


Figure 5A

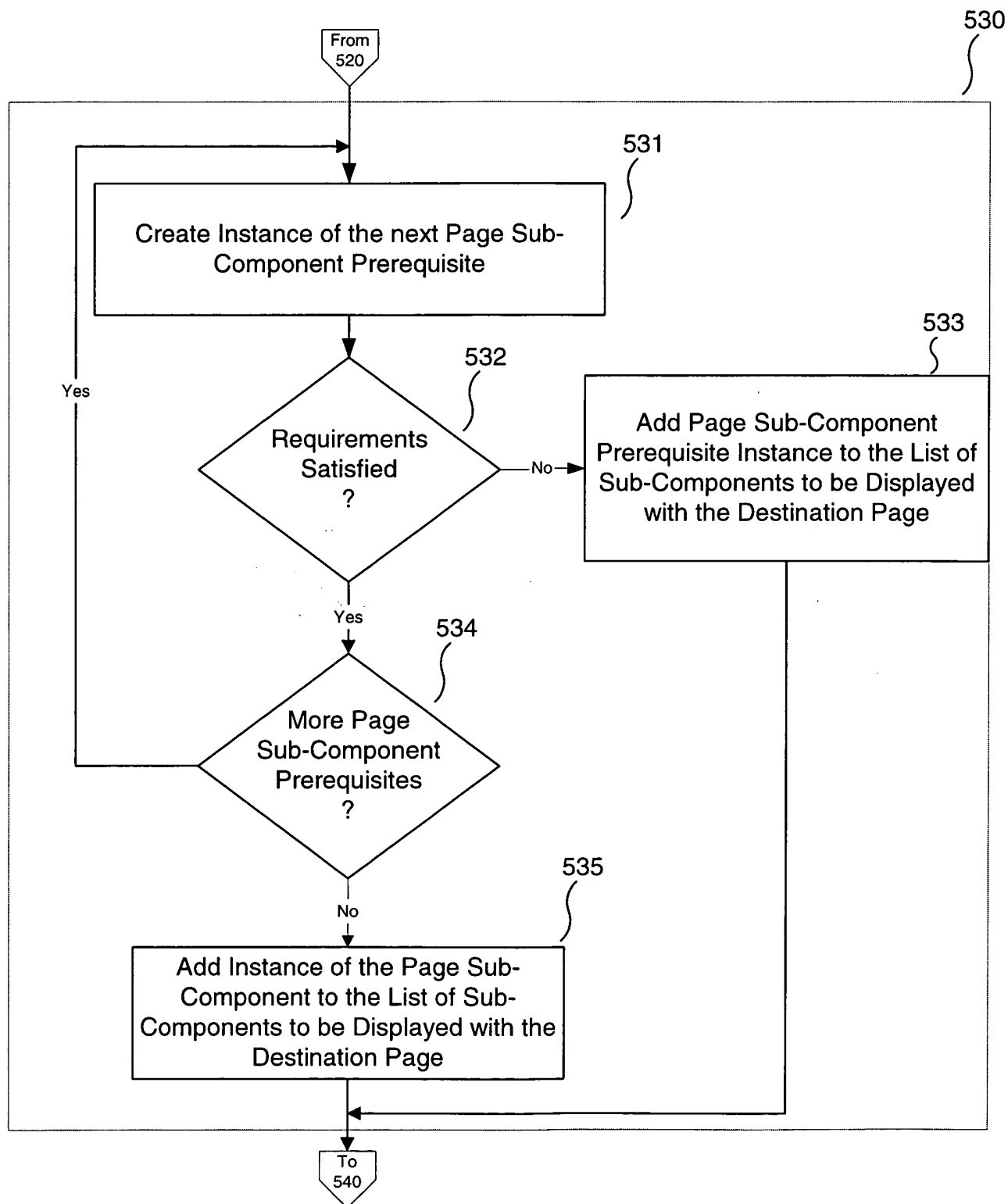


Figure 5B

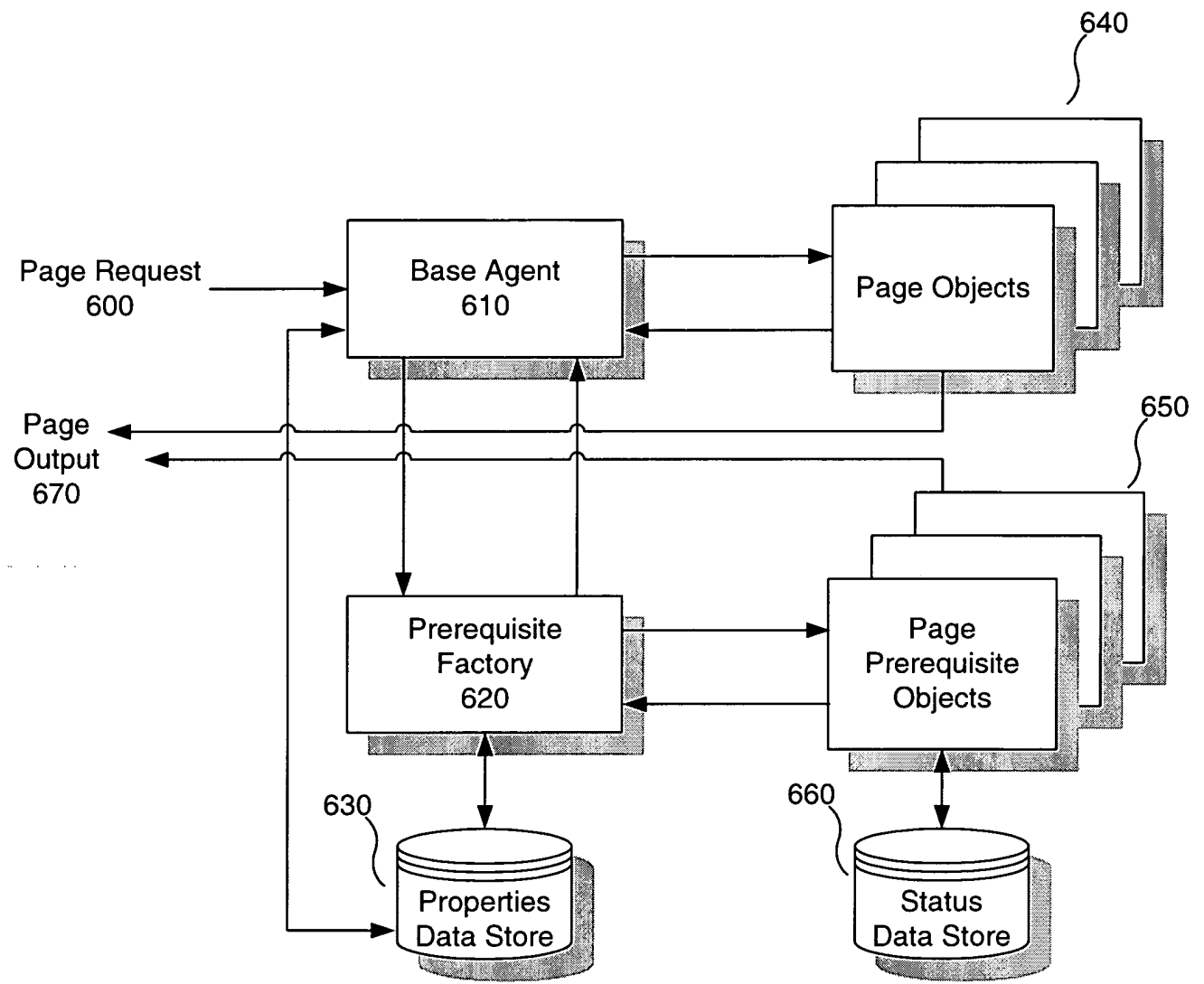


Figure 6

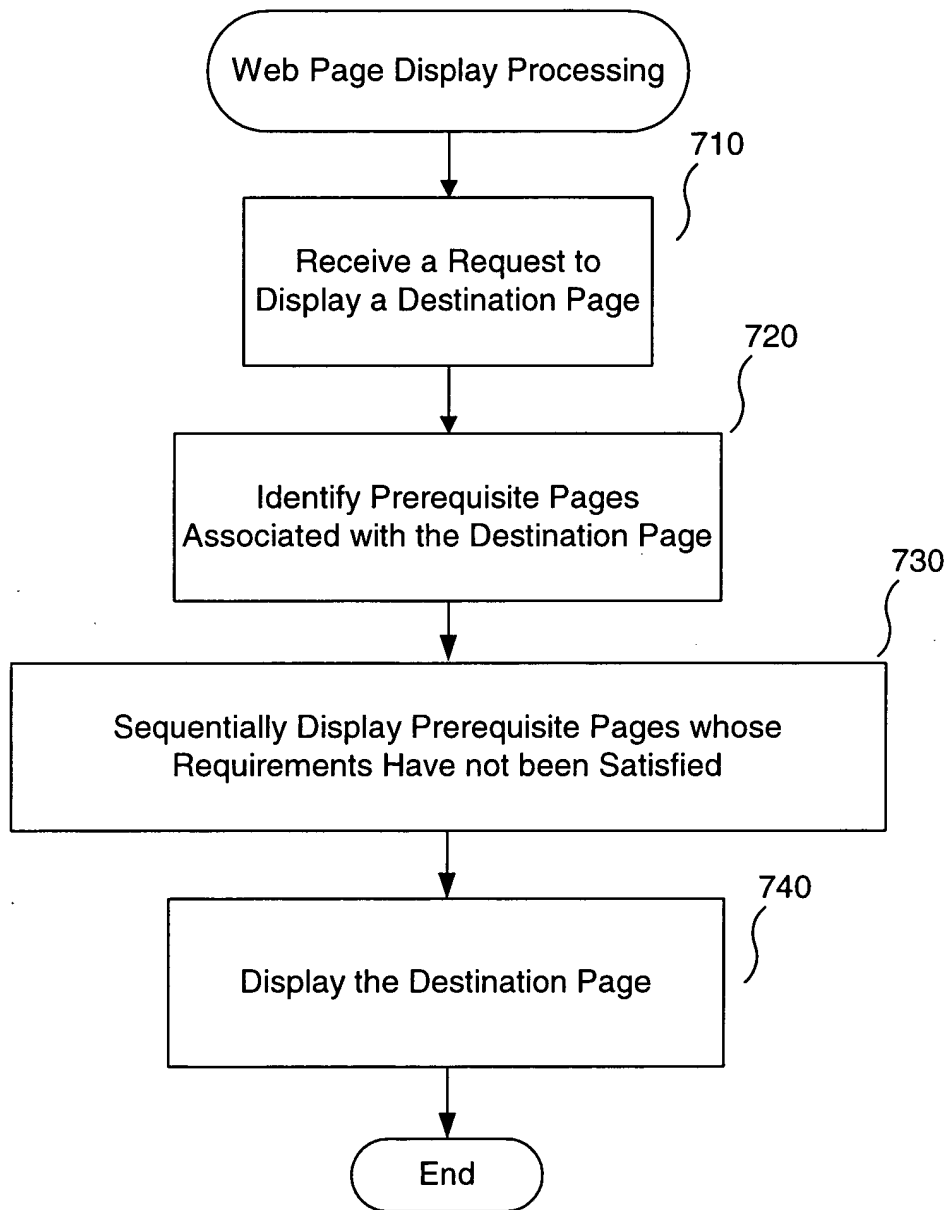


Figure 7A

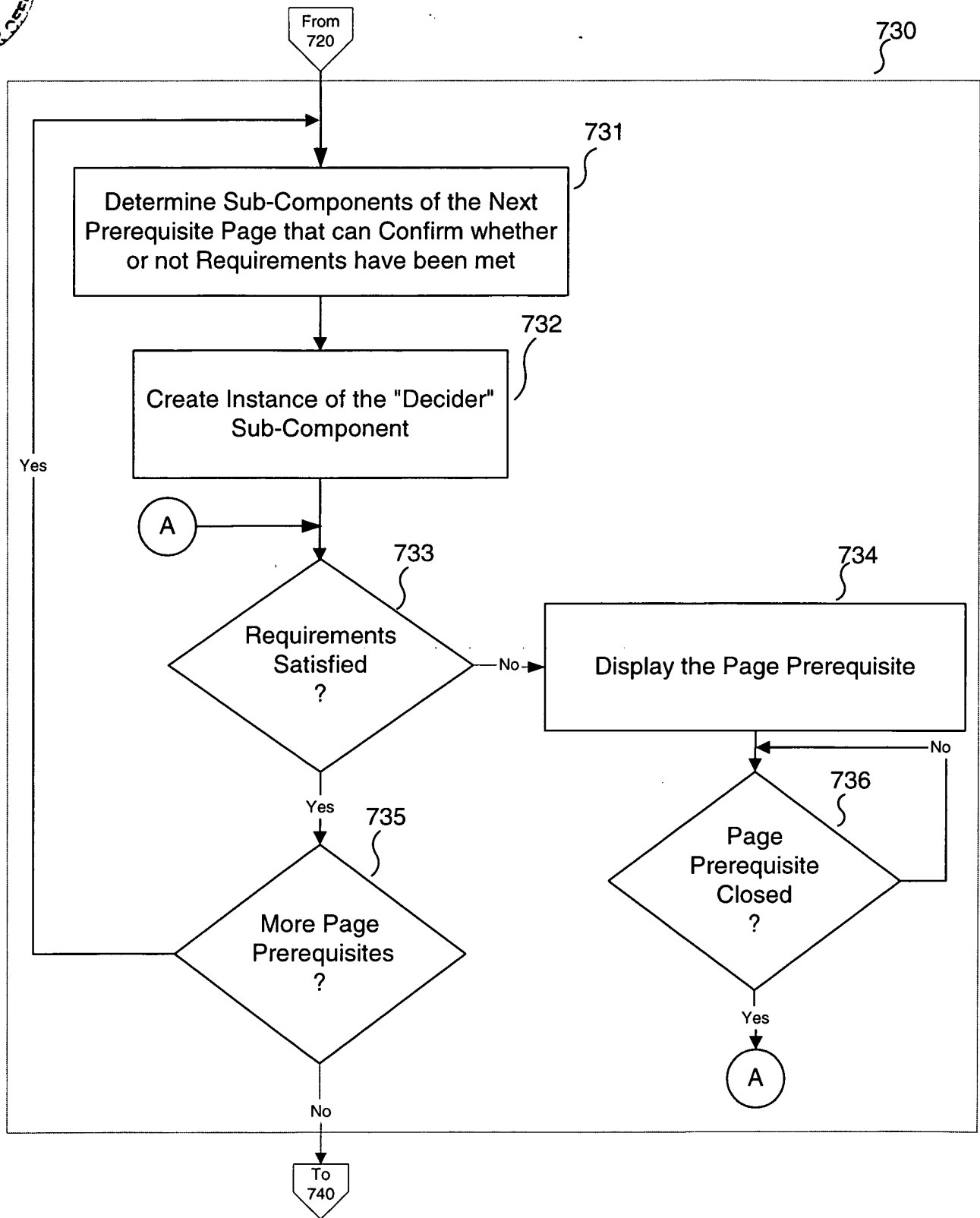
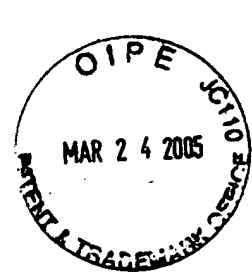


Figure 7B

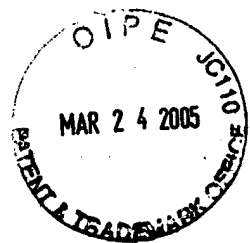


$\langle \text{Attribute} \rangle = \langle \text{Value} \rangle$ ⁸¹⁰
 $\text{prompt1} = \text{please enter your name}$ ⁸²⁰

Figure 8 (Prior Art)

$\langle \text{Object} \rangle . \langle \text{Attribute} \rangle = \langle \text{Value} \rangle$ ⁹¹⁰
 $\text{Obj1.attr1} = \text{val11}$ ⁹²⁰
 $\text{Obj1.attr2} = \text{val12}$ ⁹³⁰
 $\text{Obj2.attr1} = \text{val21}$ ⁹⁴⁰
 $\text{Obj2.attr3} = \text{val23}$ ⁹⁵⁰
 $\text{Trading.prompt1} = \text{please enter your name}$ ⁹⁶⁰

Figure 9



<Object>.extends = <anotherObject> 1010

Obj1.attr1 = val11 1020

Obj1.attr2 = val12 1030

Obj2.extends=Obj1 1040

Obj2.attr2 = val22 1050

Obj2.attr3 = val23 1060

Figure 10

<Context>.<Object>.<Attribute> = <Value> 1110

Obj1.attr1 = val11 1120

Obj1.attr2 = val12 1130

Page1.Obj1.attr2 = val112 1140

Figure 11

<Context>.extends = <anotherContext> 1210

Obj1.attr1 = val11 1220

Obj1.attr2 = val12 1230

Page1.Obj1.attr2 = val112 1240

Page2.extends = Page1 1250

Page2.Obj1.attr2 = val212 1260

Figure 12

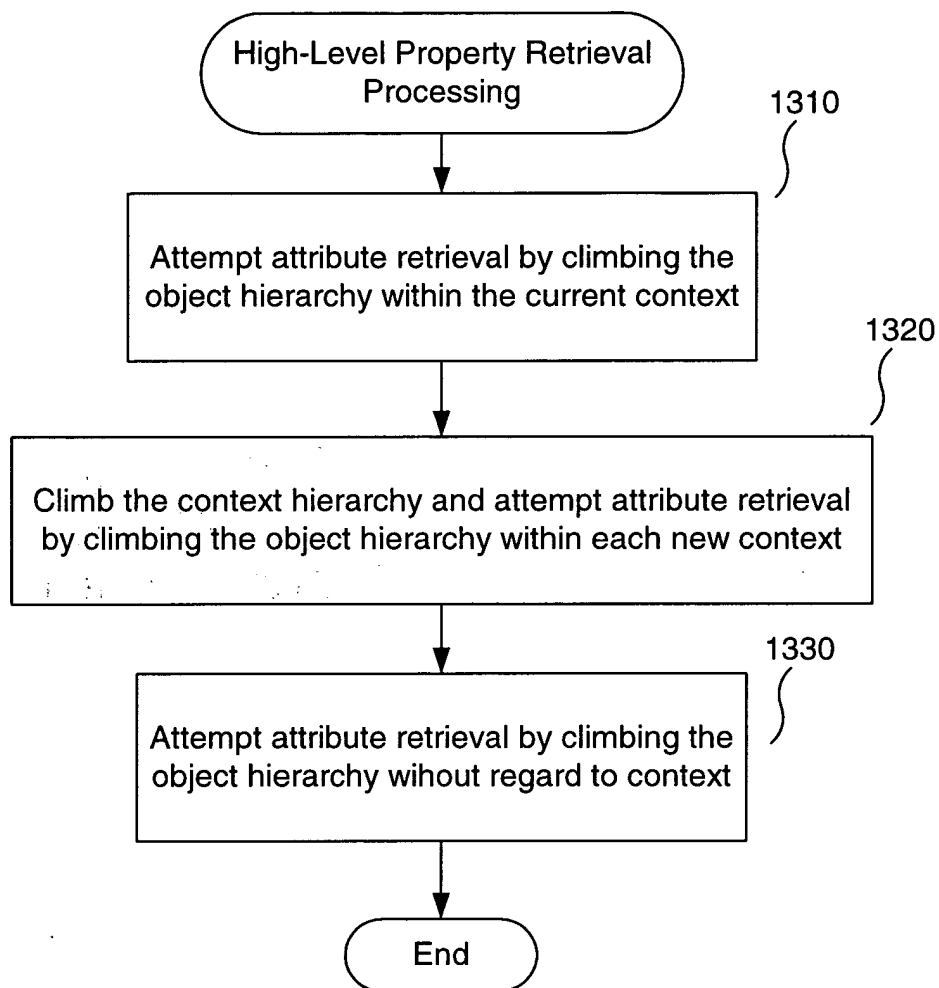


Figure 13



Page2.extends=Page1
Page3.extends=Page2

Obj2.extends=Obj1
Obj3.extends=Obj2

Figure 14A

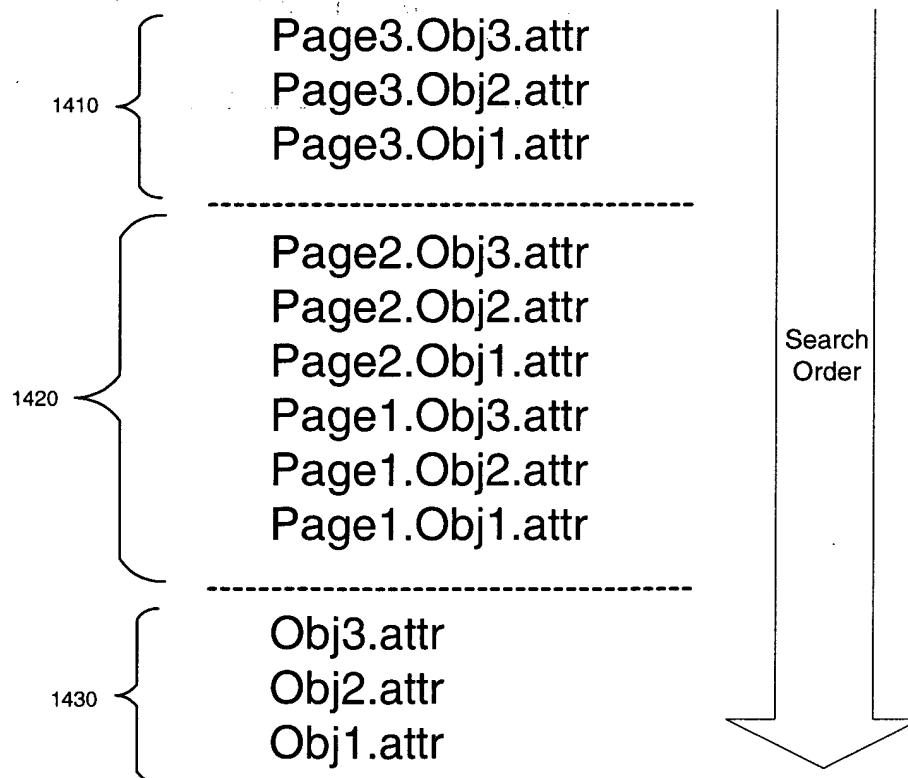


Figure 14B

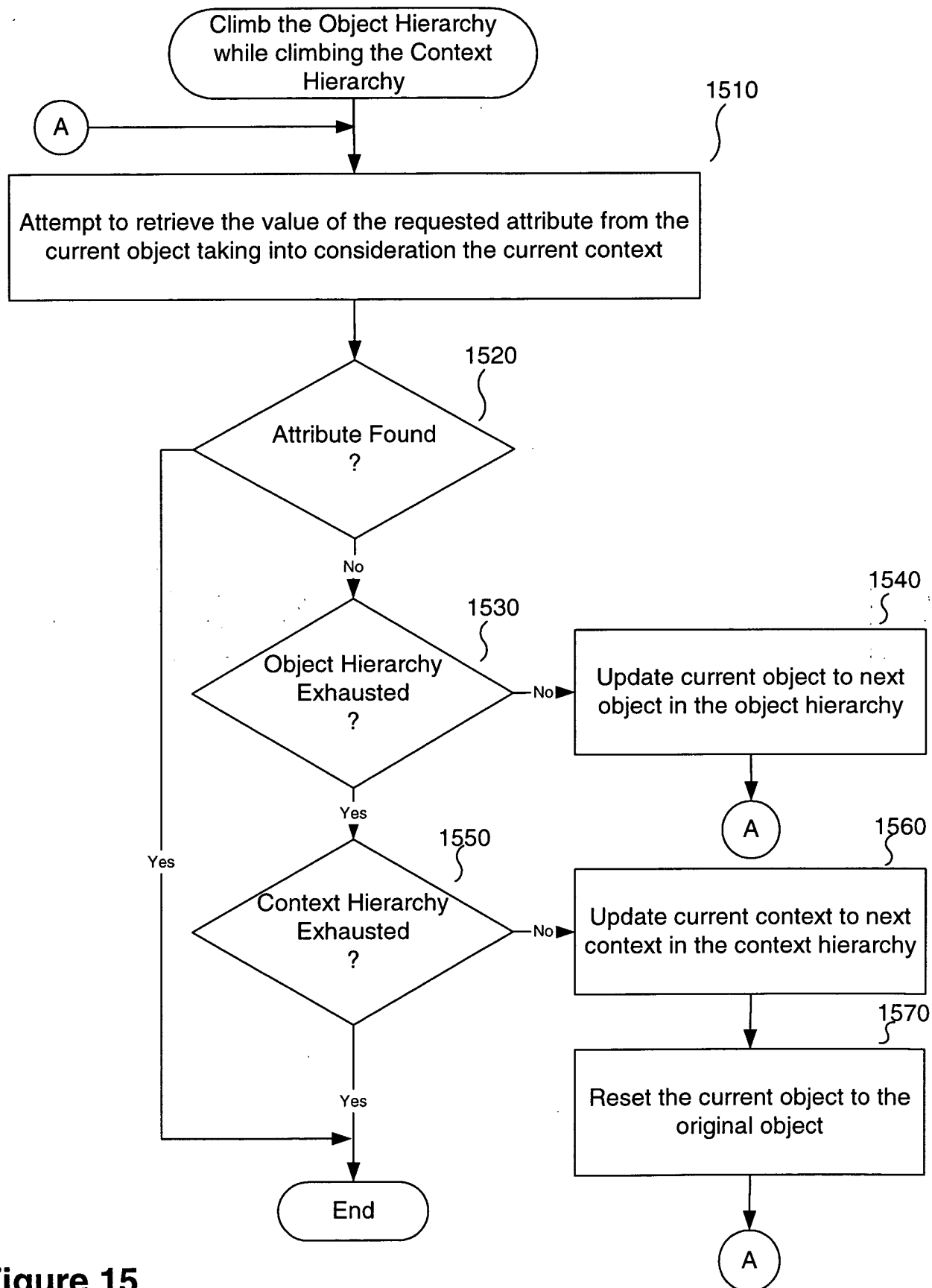


Figure 15

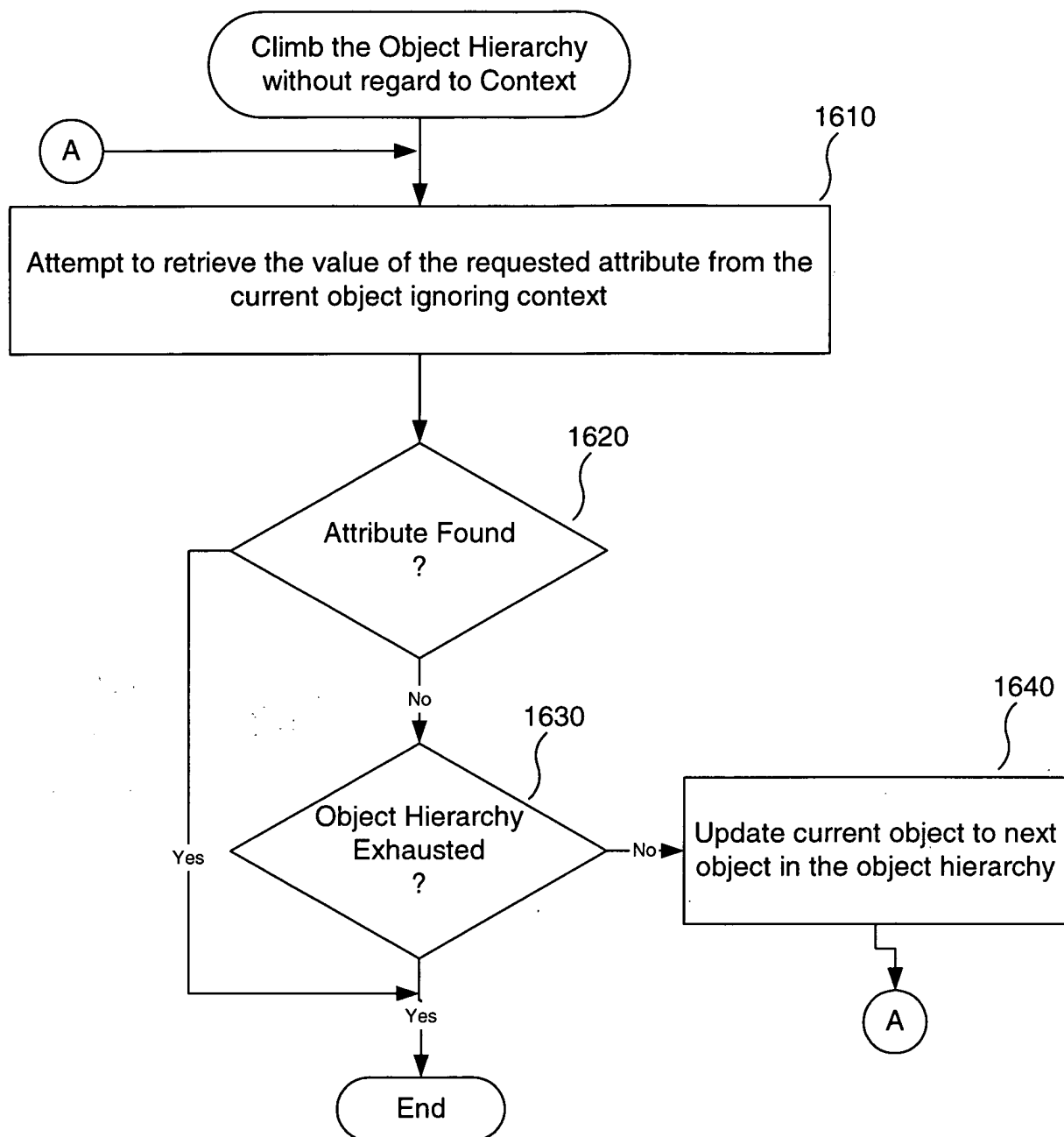


Figure 16

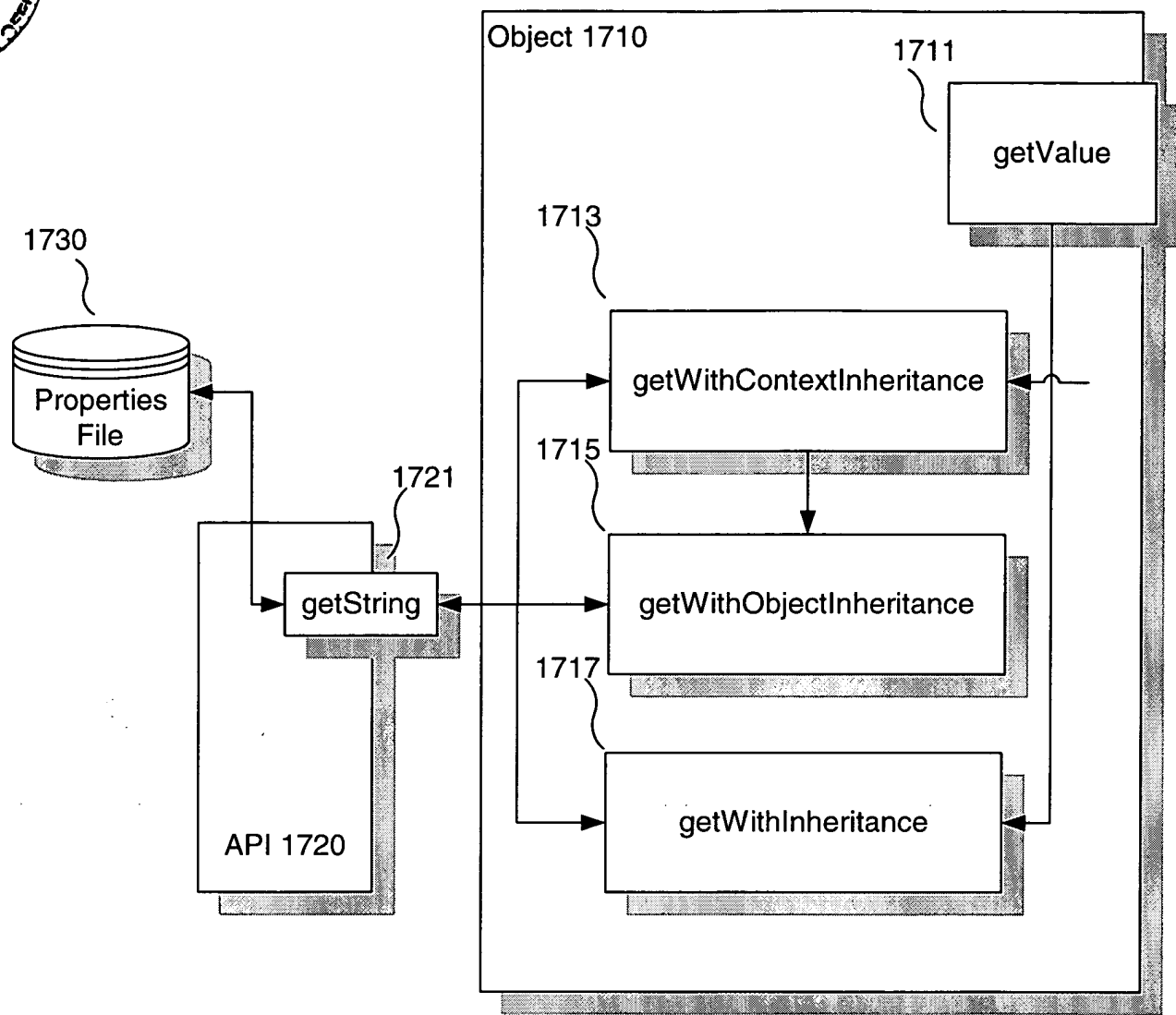
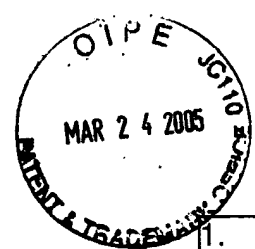


Figure 17



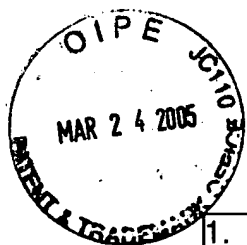
```
1. String getValue( String attrib ) {
2.
3.     // get the container name of this object
4.     String context = getContextName();
5.
6.     // get the name of the class of this executing object
7.     String object = getClass().getName();
8.
9.     // check to see if within this context a value is defined for the
10.    // specified attribute for objects of the currently executing object's
11.    // type, or for any of its parent objects
12.
13.    String result = getWithContextInheritance( context, object, attrib );
14.
15.    if (result == null) { // if it's null it didn't find it.
16.
17.        // now try to find the value of the attribute of the object
18.        // by ignoring the context
19.
20.        // this will look for the attribute in all objects that are extended by
21.        // the current object
22.
23.        result = getWithInheritance( object, attrib );
24.
25.    } // end if
26.
27.    return result;
28.
29. } // end getValue
```

Figure 18



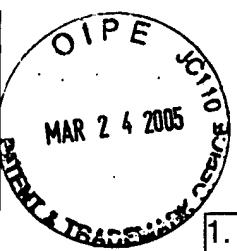
```
1. String getWithContextInheritance(  
2.   String context, String object, String attrib) {  
3.  
4.   // check if the attrib is found in the current context by climbing up  
5.   // the object hierarchy if necessary  
6.   String result = getWithObjInheritance( context, object, attrib );  
7.  
8.   if (result == null) { //didn't find it in the current context  
9.     // check if this context extends another context  
10.    context = resourceBundle.getString( context + ".extends" );  
11.  
12.    //context now contains the name of the parent context, if any  
13.    if (context != null) // found a parent context  
14.      // this is a recursive call that looks for the attribute  
15.      // and climbs up the context hierarchy  
16.      result = getWithContextInheritance( context, object, attrib );  
17.  
18.    } //end if  
19.  
20.    return result;  
21.  
22. } // end getWithContextInheritance
```

Figure 19



```
1.  String getWithObjInheritance( String context, String object, String attrib ) {
2.      // concatenate context, ".", the object, ".", and the attrib
3.      String lookFor = context + "." + object + "." + attrib;
4.
5.      // check if the combined attribute is found in the resource bundle
6.      String result = resourceBundle.getString( lookFor );
7.
8.      if (result == null) { // didn't find it in the current object
9.          // check if object extends another object, meaning
10.         // it has a parent.
11.         object = resourceBundle.getString( object + ".extends" );
12.
13.         //object now contains the name of the parent, if any
14.         if (object != null) // found a parent object
15.             // this is a recursive call that climbs up the
16.             // object's hierarchy while keeping the context unchanged.
17.             result = getWithObjInheritance( context, object, attrib );
18.
19.         } // end if
20.
21.         return result;
22.
23.     } // end getWithObjInheritance
```

Figure 20



```
1. String getWithInheritance( String object, String attrib ) {
2.     // concatenate the object, ".", and the attrib
3.     String lookFor = object + "." + attrib;
4.
5.     // check if the combined attribute is found in the resource bundle
6.     String result = resourceBundle.getString( lookFor );
7.     if (result == null) { //didn't find it in the current object
8.         // check if object extends another object, meaning
9.         // it has a parent.
10.        object = resourceBundle.getString( object + ".extends" );
11.
12.        // object now contains the name of the parent, if any
13.        if (object != null) // found a parent object
14.            // this is a recursive call. Look for the attribute
15.            // in the parent or its parents
16.            result = getWithInheritance( object, attrib );
17.
18.        } // end if
19.
20.        return result;
21.
22.    } // end getWithInheritance
```

Figure 21